WHAT IS CLAIMED IS:

1. A method for filtering images comprising:

obtaining an image; and

obtaining a final pixel value by performing a filtering operation on an initial pixel value of at least one pixel of the image and by modulating the filtering operation with a gain factor that is a function of the initial pixel value.

2. A method in accordance with Claim 1 wherein obtaining the final pixel value comprises obtaining the final pixel value by using

$P_f(i,j) = P(i,j) - (P(i,j) - decon(P(i,j))) * Gain(i,j)$, wherein $P(i,j)$ is the initial pixel value, $decon(P(i,j))$ is a deconvolution operation performed on the initial pixel value, $Gain(i,j)$ is the gain factor of the pixel, and (i,j) is the pixel.

3. A method in accordance with Claim 1 further comprising categorizing the image into at least two regions of low, medium, and high density.

4. A method in accordance with Claim 3 wherein modulating the filtering operation comprises:

performing a smoothing operation on one of the regions; and

limiting the smoothing operation to the region.

5. A method in accordance with Claim 4 further comprising:

determining a threshold value T.

6. A method in accordance with Claim 5 further comprising:

generating a gain factor curve as a function of a relative pixel value of each pixel of the image.

7. A method in accordance with Claim 6 further comprising:

calculating an effective pixel value from the initial pixel value by using

$(P_e(i,j) = (P(i,j)+P(i-1,j)+P(i+1,j)+P(i,j-1)+P(i,j+1))/5$, wherein $P_e(i,j)$ is the effective pixel value, and $P(i-1, j)$, $P(i+1, j)$, $P(i, j-1)$, and $P(i, j+1)$ are pixel values of pixels that are adjoining the pixel with pixel value $P(i,j)$.

8. A method in accordance with Claim 7 further comprising

calculating the relative pixel value $P_r(i,j)$ from the effective pixel value by using $P_r(i,j) = P_e(i,j)/T$.

9. A method in accordance with Claim 8 further comprising

calculating the gain factor of the pixel by using

$$Gain\,(i,j) = -0.35 + 0.1 * P_r(i,j) + 0.15 * P_r(i,j)^2 + 0.2 * P_r(i,j)^3 + 0.4 * P_r(i,j)^4 + 0.5$$

wherein $Gain(i,j)$ is the gain factor, and wherein $Gain(i,j)$ has positive and negative values.

10. A method for filtering images comprising:

obtaining a computed tomography (CT) image; and

obtaining a final pixel value by performing a filtering operation on an initial pixel value of at least one pixel of the CT image and by modulating the filtering operation with a gain factor that is a function of the initial pixel value.

11. A computer-readable medium encoded with a program configured to:

obtain an image; and

obtain a final pixel value by performing a filtering operation on an initial pixel value of at least one pixel of the image and by modulating the filtering operation with a gain factor that is a function of the initial pixel value.

12. A computer-readable medium in accordance with Claim 11 wherein to obtain the final pixel value the program configured to obtain the final pixel value by using $P_f(i,j) = P(i,j) - (P(i,j) - decon(P(i,j))) * Gain(i,j)$, wherein $P(i,j)$ is the initial pixel value, $decon(P(i,j))$ is a deconvolution operation performed on the initial pixel value, $Gain(i,j)$ is the gain factor of the pixel, and (i,j) is the pixel.

13. A computer-readable medium in accordance with Claim 11 wherein the program is further configured to categorize the image into at least two regions of low, medium, and high density.

14. A computer-readable medium in accordance with Claim 13 wherein to modulate the filtering operation the program configured to:

perform a smoothing operation on one of the regions; and

limit the smoothing operation to the region.

15. A computer-readable medium in accordance with Claim 14 wherein the program is further configured to determine a threshold value T.

16. A computer-readable medium in accordance with Claim 15 wherein the program is further configured to generate a gain factor curve as a function of a relative pixel value of each pixel of the image.

17. A computer-readable medium in accordance with Claim 16 wherein the program is further configured to:

calculate an effective pixel value from the initial pixel value by using $(P_e(i,j) = (P(i,j)+P(i-1,j)+P(i+1,j)+P(i,j-1)+P(i,j+1))/5$, $P_e(i,j)$ being the effective pixel value, and $P(i-1, j)$, $P(i+1, j)$, $P(i, j-1)$, and $P(i, j+1)$ being pixel values of pixels that are adjoining the pixel with pixel value $P(i,j)$.

18. A computer-readable medium in accordance with Claim 17 wherein the program is further configured to:

calculate the relative pixel value $P_r(i,j)$ from the effective pixel value by using $P_r(i,j) = P_e(i,j)/T$.

19. A computer-readable medium in accordance with Claim 18 wherein the program is further configured to calculate the gain factor for the pixel by using

$$Gain\,(i,j) = -0.35 + 0.1 * P_r(i,j) + 0.15 * P_r(i,j)^2 + 0.2 * P_r(i,j)^3 + 0.4 * P_r(i,j)^4 + 0.5$$

wherein $Gain(i,j)$ is the gain factor.

20. A computer configured to:

obtain an image; and

obtain a final pixel value by performing a filtering operation on an initial pixel value of at least one pixel of the image and by modulating the filtering operation with a gain factor that is a function of the initial pixel value.

21. A computed tomographic (CT) imaging system for filtering CT images, the imaging system comprising:

a detector array having a plurality of detectors;

an x-ray source positioned to emit x-rays toward the detector array; and

a processor operationally coupled to the detector array, the processor configured to:

obtain an image; and

obtain a final pixel value by performing a filtering operation on an initial pixel value of at least one pixel of the image and by modulating the filtering operation with a gain factor that is a function of the initial pixel value.

22. A CT system in accordance with Claim 21 wherein to obtain the final pixel value the processor configured to obtain the final pixel value by using $P_f(i,j) = P(i,j) - (P(i,j) - decon(P(i,j))) * Gain(i,j)$, wherein $P(i,j)$ is the initial pixel value, $decon(P(i,j))$ is a deconvolution operation performed on the initial pixel value, $Gain(i,j)$ is the gain factor of the pixel, and (i,j) is the pixel.

23. A CT system in accordance with Claim 21 wherein the processor is further configured to categorize the image into at least two regions of low, medium, and high density.

24. A CT system in accordance with Claim 23 wherein to modulate the filtering operation the processor configured to:

perform a smoothing operation on one of the regions; and

limit the smoothing operation to the region.

25. A CT system in accordance with Claim 24 wherein the processor is further configured to determine a threshold value T.